Attorney Docket: 8194-36DVCT PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Paul W. Dent
Serial No.: To Be Assigned
Filed: Concurrently Herewith
For: TIME-REUSE AND CODE-REUSE PARTITIONING SYSTEMS AND METHODS FOR CELLULAR RADIOTELEPHONE SYSTEMS

Date: January 18, 2001

BOX PATENT APPLICATION
Commissioner for Patents
Washington, DC 20231

PRELIMINARY AMENDMENT

Sir:

Please enter the following Preliminary Amendment before examining the present continuation application, and consider the remarks that follow in the examination thereof.

In the Title:

Please delete the title in all occurrences and substitute the following title therefor:

-- CODE-REUSE PARTITIONING SYSTEMS AND METHODS FOR CELLULAR COMMUNICATIONS --.

In the Claims:

Please amend the claims as follows:

Please cancel Claims 1-19.

20. (Amended) A method [for] of operating a plurality of code division multiple access cellular radiotelephone base stations [for communicating with cellular radiotelephones using a plurality of spreading codes, each of said spreading codes having a period], the method comprising the steps of:

communicating between the plurality of base stations and radiotelephones using a common plurality of spreading codes; and

allocating cellular radiotelephone frequencies among said plurality of base stations according to a first frequency allocation system for a first one of said

spreading codes and according to a second frequency allocation system different from said first frequency allocation system for a second one of said spreading codes.

Please cancel Claims 22-29.

Please add the following claims:

30. (New) A method according to Claim 20, further comprising the step of synchronizing said common plurality of spreading codes.

31. (New) A method according to Claim 20, wherein the first frequency allocation system comprise a first frequency reuse pattern, and wherein the second frequency allocation system comprises a second frequency reuse pattern.

32. (New) A method of operating a code division multiple access (CDMA) wireless communications system that includes a plurality of cells, the method comprising:

allocating frequencies for use in the plurality of cells such that respective different frequency allocations are provided for respective first and second spreading codes.

33. (New) A method according to Claim 32, wherein the step of allocating frequencies for use in the plurality of cells comprises:

applying a first frequency reuse pattern for the first spreading code; and

applying a second frequency reuse pattern for the second spreading code.

34. (New) A method according to Claim 32, wherein the step of allocating comprises:

adaptively allocating frequencies for use with the first spreading code according to a first adaptive allocation scheme; and

adaptively allocating frequencies for use with the second spreading code according to a second adaptive allocation scheme.

35. (New) A method according to Claim 32 wherein said plurality of spreading codes comprises one of a plurality of direct-sequence-modulation codes, a plurality of frequency-hopping codes, and a plurality of combined frequency-hopping/direct-sequence-modulation codes.

36. (New) A cellular radiotelephone system comprising:

a plurality of code division multiple access (CDMA) cellular radiotelephone base stations that communicate with cellular radiotelephones on a plurality of frequencies using a common plurality of spreading codes and using frequencies that are allocated among said plurality of base stations such that frequencies are allocated for a first one of said spreading codes according to a first frequency allocation system and are allocated for a second one of said spreading codes according to a second frequency allocation system different from said first frequency allocation system.

37. (New) A system according to Claim 36 wherein said plurality of spreading codes is one of a plurality of direct-sequence-modulation codes, a plurality of frequency-hopping codes, and a plurality of combined frequency-hopping/direct-sequence-modulation codes.

38. (New) A system according to Claim 36, wherein said first frequency allocation has a number of subscribers, and wherein said plurality of code division multiple access (CDMA) cellular radiotelephone base stations operate responsive to said number of subscribers of said first frequency allocation system such that cellular radiotelephone frequencies are allocated among said plurality of base stations according to said first frequency allocation system for a third one of said synchronized spreading codes.

39. (New) A code division multiple access (CDMA) wireless communications system, comprising:

a plurality of cells; and

a code reuse partitioning circuit operative to allocate frequencies for use in the plurality of cells such that respective different frequency allocations are provided for respective first and second spreading codes.

40. (New) A system according to Claim 39, wherein the code reuse partitioning circuit is operative to apply a first frequency reuse pattern for the first spreading code and to apply a second frequency reuse pattern for the second spreading code.

41. (New) A system according to Claim 40, wherein the code reuse partitioning circuit is operative to adaptively allocating frequencies for use with the first spreading code according to a first adaptive allocation scheme and to adaptively allocating frequencies for use with the second spreading code according to a second adaptive allocation scheme.

42. (New) A system according to Claim 40, wherein said plurality of spreading codes comprises one of a plurality of direct-sequence-modulation codes, a plurality of frequency-hopping codes, and a plurality of combined frequency-hopping/direct-sequence-modulation codes.

REMARKS

Applicant requests entry of this preliminary amendment prior to consideration of the present continuation application. Applicant further requests consideration of the following remarks regarding patentability of Claims 20 and 36, and the claims depending therefrom, over references cited in the parent application.

Independent Claims 20 and 36 are patentable over the Gitlin and Long references cited in the parent application

Claims 20 and 36 were rejected in parent application serial number 09/186,575 under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 5,640,385 to Long et al. ("Long") or U.S. Patent No. 6,018,528 to Gitlin et al. ("Gitlin"). Applicant submits

that these references, alone or in combination, fail to disclose or suggest several of the recitations of Claims 20 and 36.

Claim 20 recites, in part:

> . . . allocating cellular radiotelephone frequencies ***among said plurality of base stations*** according to a first frequency allocation system for a first one of said spreading codes and according to a second frequency allocation system different from said first frequency allocation system for a second one of said spreading codes.

Corresponding apparatus recitations are provided in independent Claim 36.

Long describes a wireless communications system in which overlapping wideband and narrowband signals are transmitted in a cell. In particular, Long (column 3, lines 44-67) describes transmitting a wideband code division multiple access (CDMA) signal that overlaps narrowband frequency division multiple access (FDMA) or time division multiple access (TDMA) signals. Long (column 5, line 36 to column 6, line 37) further describes a system in which one CDMA channel is used in a cell along with two to three frequency modulated (FM) signals.

However, Long fails to disclose or suggest "allocating cellular radiotelephone frequencies ***among said plurality of base stations*** according to a first frequency allocation system for a first one of said spreading codes and according to a second frequency allocation system different from said first frequency allocation system for a second one of said spreading codes," because ***Long says nothing about allocating frequencies in different ways for different spreading codes***. For at least the foregoing reasons, Applicant submits that independent Claims 20 and 36, and the claims depending therefrom, are patentable over Long.

Gitlin also fails to disclose or suggest several of the recitations of these claims. Gitlin describes allocation of portions of a "frequency-code" space ***among users***, not allocation of frequencies ***among base stations***. In particular, Gitlin states:

> The term "code space" is used to denote the overall set of all possible codes for assignment to ***user*** transmission employing, for instance, a "family" of codes acceptable for purposes of cross-correlation. A ***user*** requiring a large degree of code space – for instance, users G, B, M, Q, F—can be granted code space in at least two ways.

(Gitlin, column 7, lines 39-44; emphasis added) Thus, Gitlin does not disclose or suggest "allocating cellular radiotelephone frequencies ***among said plurality of base***

stations according to a first frequency allocation system for a first one of said spreading codes and according to a second frequency allocation system different from said first frequency allocation system for a second one of said spreading codes" as recited in Claim 20, or corresponding recitations of Claim 36. For at least the foregoing reasons, Applicant submits that independent Claims 20 and 36, and the claims depending therefrom, are patentable over Gitlin.

Conclusion

Applicant requests entry of this Preliminary Amendment prior to examination of the present continuation application, and consideration of the remarks herein. In particular, Applicant submits that independent Claims 20 and 36, and the claims depending therefrom, are patentable over the references cited against these claims in the parent application, as these reference fail to disclose or suggest, among other things, allocation of frequencies among base stations according to spreading codes as recited in these claims. Accordingly, Applicant requests favorable examination of the present application, and issuance of a Notice of Allowance in due course.

Respectfully submitted,

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